6. **An adopter for mobile phones is an example of ?**

- A: Step up transformer
- B: Step down transformer
- C: Rectifier
- D: Both B and C.

7. **A 50 Hz AC current of maximum value 1 A flows through a primary coil of transformer. If the mutual inductance between the primary and secondary coils is 1.5 H, the maximum value of voltage induced in the secondary coil is?**

- A: 75 V
- B: 225 V
- C: 250 V
- D: 300 V

8. **A wire moving perpendicular to a magnetic field experiences induced emf V. At what ange would emf would be halved? (keeping all other factors same)**

- A: 0^0
- B: 30^0
- C: 45^0
- D: 60^0

9. **What is the mutual inductance of two coils if 5.6V is induced in the secondary coil due to change of current from 100A to 20A in 0.02 s in the primary coil?**

- A: $1.4 * 10^{-2}$ H
- B: $3.7 * 10^{-3}$ H
- C: $2.8 * 10^{-4}$ H
- D: $1.4 * 10^{-3}$ H

10. **A solenoid of area of cross section 2.0 cm^2 and length 100 cm stores energy. When current of 5.0A flowing in it produces B = 0.1T then the stored energy is ?**

- A: $10^{-4} / \mu_0$
- B: $10^{-6}\ \mu_0$
- C: $10^{-6} / \mu_0$
- D: None of the above.

11. **A rectangular coil with 20 turns and area of cross-section 25 cm^2 has a resistance of 100 ohms. If a magnetic field, which is perpendicular to the plane of the coil changes at a rate of 1000 tesla/sec, what is the current in the coil?**

- A: 10 A
- B: 50 A
- C: 0.5 A
- D: 5 A

12. **A loop of wire is placed in a magnetic field of 0.6 T such that B is perpendicular to plane of the loop. If loops beings to shrink at a constant rate of 0.8 m^2/s. Magnitude of emf induced is?**

- A: Zero
- B: 0.3 V
- C: 0.5 V
- D: 0.8

13. For a good transformer the hysterisis loop are ---------- in size?

- A: Small
- B: Large
- C: Zero
- D: It does not affect efficiency of transformers.

14. What is the self inductance of a coil when a change of current from 0 to 2A in 0.05 sec induces an emf of 40V in it ?

- A: 1H
- B: 2H
- C: 3H
- D: 4H

15. A copper ring is held horizontally and bar magnet is dropped through the ring with its length along the axis of the ring. The acceleration of the following magnet is?

- A: Equal to that due to gravity
- B: Less than that due to gravity
- C: More than that due to gravity
- D: None of the above.

16. Consider a flat square coil with N = 5 loops. The coil is 20 cm on each side, and has a magnetic field of 0.3 T passing through it. The plane of the coil is perpendicular to the magnetic field. The magnetic field is increased uniformly from 0.3 T to 0.8 T in 1.0 seconds. While the change is taking place, what is the induced emf in the coil?

- A: - 0.1 V
- B: - 0.3 V
- C: 0.1 V
- D: 0.3 V

17. In ideal transformer when potential difference is doubled the current is ?

- A: Doubled
- C: Halved
- B: Tripaled
- D: Same

18. If we double the number of turns, area and current through a solenoid. Its self inductance would?

- A: Increase by 2 times
- B: Increase by 4 times
- C: Increase by 8 times
- D: Remain same.

19. A circuit has a self-inductance of 1 Henry and carries a current of 2 A. What is the value of a capacitor connected to the circuit such that it stores the equal amount of energy as the inductor. Assume V = 400 V.

- A: 12.5 μF
- C: 100 μF
- B: 25 μF
- D: 150 Mf

20. Maximum heat is produced in which part of the transformer?

- A: Core
- C: Winding
- B: Oil
- D: Frame

TEST-4

1. **In an ideal transformer which of the following factors are true?**

   - A: Input and output power is same
   - B: Currents are inversely proportional to voltage
   - C: Currents are directly proportional to voltage
   - D: Both A & B.

2. **Induced electric current can be explained by which law ?**

   - A: Gauss's aw
   - B: Faraday's law
   - C: Ohm's law
   - D: Ampere law

3. **If the emf across the conductor of length 1m moving with a uniform speed at right angles to a magnetic field of 0.5T is 2V, the velocity of conductor is ?**

   - A: 1 ms^{-1}
   - B: 2ms^{-1}
   - C: 4ms^{-1}
   - D: 8ms^{-1}

4. **The negative sign with induced e.m.f. is explained by?**

   - A: Faraday's law
   - B: Lenz's law
   - C: Ampere's law
   - D: Right hand rule

5. **An over loaded motor?**

   Draws very high current

   Draws very low current

   Moves at a slow speed

   - A: i only
   - B: ii only
   - C: i and iii only
   - D: ii and iii only

6. **An emf of 0.003V is induced in a wire when it moves at right angles to uniform magnetic field with a speed of 4 m/ sec if the length of the wire in the field is 15cm, what is the flux density in Telsa ?**

   - A: 0.003
   - B: 0.005
   - C: 6
   - D: 12

7. **If the speed of rotation of AC generator is made four times of its initial value, the percentage increase in an induced emf is?**

   - A: 100%
   - B: 400%
   - C: 300%
   - D: None

8. Unit of inductance is?

- A: Coulombs
- B: Amperes
- C: Volt
- D: Henry

9. In the actual transformer, the output is always?

- A: Equal to input
- B: Less than input
- C: More than input
- D: May be less or more than the input

10. Two parallel conducting wires placed closer to each other carry current in the same direction will ?

- A: Attract each other
- B: Repel each other
- C: No effect
- D: May attract or repel each other

11. The induced e.m.f can be increase by increasing?

- A: Strength of magnetic field.
- B: Increasing speed of loop motion
- C: Number of turns in the coil.
- D: All of the above.

12. Which of the following statement is correct?

- A: Motors have no self induction.
- B: Generators have no self induction.
- C: Motor is like a generator in reverse.
- D: DC motor is generally smaller in size than AC motor.

13. Alternating current changes its?

Magnitude

Direction

Frequency

- A: i only
- B: ii only
- C: i and ii only
- D: ii and iii only.

14. The mutual inductance between two coil is ? (p is subscript of primary coil with electric source and s is the secondary coil with no electric source.)

- A: $M = (N_s\Phi_s) / I_s$
- B: $M = (N_p\Phi_s) / I_p$
- C: $M = (N_p\Phi_p) / I_s$
- D: $M = (N_s\Phi_s) / I_p$

15. Current I is flowing through circular loop of area A. It is placed in uniform magnetic field B_0, so that its plane is perpendicular to B_0. The force or torque on loop will be?

- A: IB_0A
- B: $2IB_0A$
- C: $1/2 * IB_0A$
- D: Zero.

16. The jerks in simple DC motor are caused due to?

- A: Commutator
- B: Armature
- C: Torques
- D: Hysteresis losses.

17. In AC current, inductors behave like?

- A: Capacitors.
- B: Resistors.
- C: Diodes.
- D: Copper wire.

18. The energy stored in the inductor per unit volume is ?

- A: $B/2\mu_0$
- B: $B^2/2\mu_0$
- C: $B/4\mu_0$
- D: $B^2/4\mu_0$

19. The instantaneous value A.C. voltage is?

- A: $V=V_0 \sin(2\pi ft)$
- B: $V=V_0 \sin(2f t)$
- C: $V=V_0 \sin(2\pi wt)$
- D: $V=V_0 \sin(2\pi t)$

20. When we wire a solenoid around a ferromagnetic core its self inductance?

- A: Remains same.
- B: Decreases.
- C: Increases.
- D: Depends on the nature of the ferromagnetic core

TEST 1

1. **The mean value of A.C. over a complete cycle is?**

   - A: V_0
   - B: $2V_0$
   - C: Zero
   - D: $V_0 \sin(2\pi ft)$

2. **By increasing the frequency of A.C through an inductor the reactance will be ?**

   - A: Increased
   - B: Decreased
   - C: Remain same
   - D: Reduced to zero.

3. **In pure resistive A.C. circuit the voltage and current are ?**

   - A: In phase
   - B: Voltage leads the current by $\pi/2$
   - C: Current leads the voltage by $\pi/2$
   - D: Voltage leads the current by $3\pi/2$

4. **What is the self inductance in a coil in which an induced e.m.f of 2V is set up when the current changes at the rate of 4 A/sec ?**

   - A: 0.5 m H
   - B: 0.5 H
   - C: 2 H
   - D: 8 H

5. **An electrical oscillator is a?**

   - A: Diode circuit
   - B: Rectifier circuit
   - C: LC circuit
   - D: Transformer

6. **The process of combining the low frequency signal with high frequency radio wave is called ?**

   - A: Modulation
   - B: Amplification
   - C: Rectification
   - D: Frequency modulation.

7. **Which of the following have frequency dependent resistance?**

   - A: Capacitor
   - B: Inductor
   - C: Resistor
   - D: Both A & B.

8. Find the impedance of an AC circuit when the current flowing in it is 100mA and 10 volts are applied to the circuit?

- A: 500 ohms
- B: 100 ohms
- C: 25 ohms
- D: 20 ohms

9. The resistance of inductor is?

- A: $1/2\pi fL$
- B: $2\omega L$
- C: $2\pi fL$
- D: $2\omega L$

10. The reciprocal of impedance is called?

- A: Conductance
- B: Inductance
- C: Admittance
- D: Capacitance

11. The combine opposition of resistor, capacitor and inductor is called?

- A: Reactance
- B: Resistance
- C: Impedance
- D: Inductance

12. An A.C varies as a function of?

- A: Voltage
- B: Current
- C: Voltage and current
- D: Time

13. The S.I unit of impedance is?

- A: Joule
- B: Weber
- C: Ampere
- D: Ohm

14. The unit used for capacitative reactance is ?

- A: Volt
- B: Ampere
- C: Joule
- D: Ohm

15. During each cycle A.C reaches its peak value?

- A: One time
- B: Two times
- C: Three times
- D: Four times

16. The A.C e.m.f can be represented which kind of wave form?

- A: Sinusoidal
- B: Cosine wave
- C: Tangent wave
- D: Linear

17. If time period of AC wave is 5s its frequency is?

- A: 50 Hz
- B: 25 Hz
- C: 5 Hz
- D: 0.2 Hz

18. The condition of resonance reached when?

- A: $X_C > X_L$
- B: $X_L < X_C$
- C: $X_L = X_C$
- D: $X_L = X_C = 0$.

19. The peak value of sinusoidal voltage in an AC circuit is 50V.The rms value of voltage is roughly equal to ?

- A: 70V
- B: 40V
- C: 35V
- **D: 45V**

20. A cosine wave leads sine wave by?

- A: $\pi / 2$
- B: $3 \pi / 2$
- C: π
- D: None of the above.

TEST 2

1. **If frequency increases the impedance of RC series circuit?**

- A: Increases.
- B: Decreases
- C: Increases at twice the rate of f.
- D: Decreases at twice the rate of f.

2. **In pure inductive circuit the voltage?**

- A: Lead the current by 90^0
- B: Lag the current by 90^0
- C: Remain same with current
- D: Lag the current by 180^0

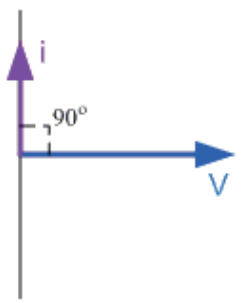
3. **If reactance of 3 ohms and resistance of 4 ohms are connected in series. What is the total impedence?**

- A: 3 ohms
- B: 4 ohms
- C: 5 ohms
- D: 7 ohms

4. **If AC meter reads 70 V then peak to peak voltage is?**

- A: 70 V
- B: 140 V
- C: 200 V
- D: 220 V

5. **The phase diagram below is for what kind of load?**



- A: Inductor
- B: Capacitor
- C: Resistor
- D: Inductor and Capacitor combined.

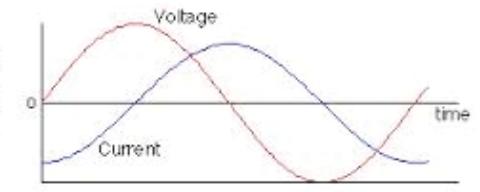
6. **If the frequency of A.C is doubled, the inductor reactance will be ?**

- A: Half
- B: Same
- C: Double
- D: Triple

7. **If 8 W resistances and 6 W reactance are present in an AC series circuit, what will be the impedance of the circuit?**

- A: 20 ohms
- B: 14 ohms
- C: 10 ohms
- D: 2 ohms

8. **The given wave diagram is for what kind of load?**



- A: Inductor
- B: Capacitor
- C: Resistor
- D: None of the above.

9. **Which of the following is true about electromagnetic waves?**

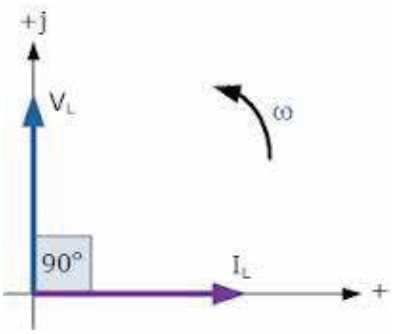
No medium is required for their transmission

They travel in the direction of electric field

They travel in the direction of magnetic field.

- A: i only.
- B: i and ii only
- C: i and iii only
- D: None of of them is true.

10. **The phase diagram below is for what kind of load?**



- A: Capacitor
- B: Resistor
- C: Inductor
- D: None of the above.

11. **An A.C choke is a coil consist of thick copper wire, wound closely over a ?**

- A: Soft iron core
- B: Hard iron core
- C: Soft iron laminated core
- D: Hard iron laminated core

12. If V_0 = 100 V and capacitance of the circuit is 70 ohms. Current as measured by the AC meter is?

- A: 1.0 A
- B: 1.4 A
- C: 2.4 A
- D: Zero.

13. The phase difference between coils of three phase A.C is ?

- A: 60^0
- B: 45^0
- C: 90^0
- D: 120^0

14. Three phase AC motors have how many terminals?

- A: Two
- B: Four
- C: Six
- D: Eight

15. What is phase difference between V and I in series RC circuit if reactance is 50 ohm and resistance is 100 ohm.

- A: Voltage leads current by angle $\tan^{-1}$ (2)
- B: Current leads voltage by angle $\tan^{-1}$ (2)
- C: Voltage leads current by angle $\tan^{-1}$ (0.5)
- D: Current leads voltage by angle $\tan^{-1}$ (0.5)

16. The superposition of sound wave on EM waves that causes a change in vertical shape of EM waves is ?

- A: Frequency modulation
- B: Amplitude modulation
- C: Phase modulation.
- D: None of the above.

17. The magnitude of voltage in case of RL series circuit ?

- A: $V = I\sqrt{R^2 + 1/(wL)^2)}$
- B: $V = I(R + \omega L)$
- C: $V = I\sqrt{R^2 + (wL)^2)}$
- D: $V = I\sqrt{R + (wL)}$

18. When A.C flow through RC series circuit the magnitude of voltage is ?

- A: $V = I\ (R^2 + (\omega c)^2)^{1/2}$
- B: $V = I\ (R^2 + 1/(\omega c)^2)^{1/2}$
- C: $V = I\ (R + 1/\omega c)$
- D: $V = I\ (R + \omega c)^{1/2}$

19. In case of capacitor?

- A: I lead V by 90^0
- B: V lead I by 90^0
- C: I lead V by π
- D: V lead I by π

20. Which of the following is true about FM with respect to AM?

- A: It has shorter range.
- B: It has better quality.
- C: It is able to travel around obstacles.
- D: Both A & B.

TEST 3

1. **In FM, the frequency of modulated carrier waves has lowest frequency when signal amplitude is?**

   - A: Maximum negative value
   - B: Maximum positive value
   - C: Amplitude zero
   - D: Both A & B.

2. **In an oscillating L-C circuit, the maximum charge on the capacitor is Q. The charge on the capacitor, when energy is stored equally between the electric and magnetic fields is?**

   - A: Q / 2
   - B: Q / √2
   - C: Q / √3
   - D: Q /

3. **In L-R circuit, the value of L is 0.4/π H, and the value of R is 30 ohms. If in the circuit, an alternating emf of 200 V at 50 cycles/s is connected, the impedance of the circuit will be?**

   - A: 10 ohms
   - B: 30 ohms
   - C: 40 ohms
   - D: 50 ohms

4. **A coil takes a current of 2 Ampere and 200 Watt power from an alternating current source of 220 V, 50 Hertz.What is the inductance of the coil?**

   - A: 0.1 H
   - B: 0.2 H
   - C: 0.3 H
   - D: 0.5 H

5. **In case of RLC series circuit the impedance of circuit above resonance frequency is ?**

   - A: Z = R + Xc + X_L
   - B: Z = R + X_L - X_c
   - C: $Z = \sqrt{R^2 + (X_L - X_c)^2}$
   - D: $Z = \sqrt{R^2 + (X_L + X_c)^2}$

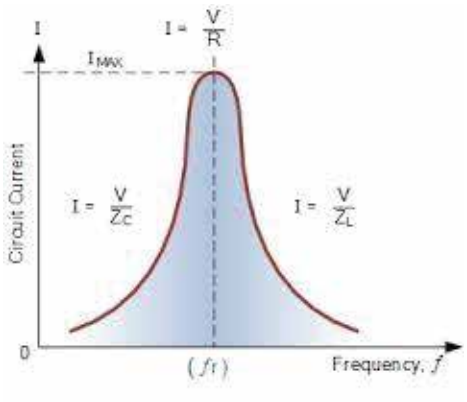
6. **In LCR circuit, the capacitance is changed from C to 4C. For the same resonant frequency, the inductance should be?**

   - A: L/4
   - B: L/3
   - C: 5L
   - D: 2L

7. **In an LCR series circuit, the potential difference between the terminals of inductance is 60 V, between the terminals of the capacitor is 30 V, and that across the resistance is 40 V. Then, supply voltage will be equal to?**

   - A: 10 V
   - D: 130 V
   - B: 50 V
   - C: 70 V

8. The Current-Frequency graph below is for what kind of circuit?



- A: Series RLC circuit.
- B: Parallel RLC circuit
- C: RC circuit in series
- D: RL circuit in parallel

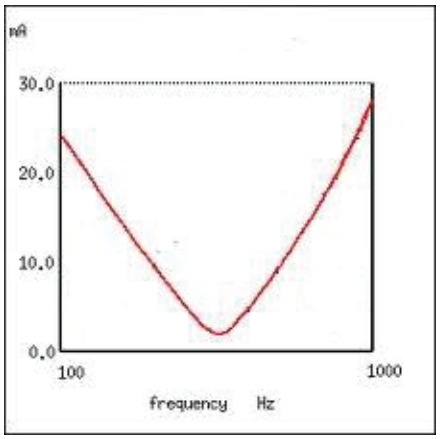
9. At high frequencies RLC circuits behave like?

- A: RC circuits
- B: RL curcuits
- C: Resistive circuits
- D: Resonating circuit

10. In an AC circuit, the voltage applied is $E = E_0 \sin \omega t$. The resulting current in the circuit is $I = I_0 \sin (\omega t - \pi/2)$. The power consumption in the circuit is given by?

- A: $P = E_0 I_0$
- B: $P = E_0 I_0 / 2$
- C: $P = E_0 I_0 * \sqrt{2}$
- D: Zero.

11. The Current Frequency graph below is for what kind of circuit?

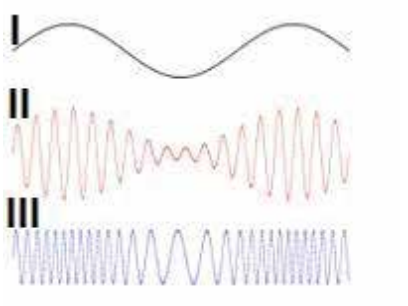


- A: RC series circuit
- B: RL parallel circuit
- C: RLC series circuit
- D: RLC parallel circuit.

12. A steady current of 20 A flows through a coil of inductance 0.03 henry when connected to a 200 volt D.C supply.What is the value of power facor for 50 Hz AC?

- A: 0.2
- B: 0.5
- C: 0.6
- D: 0.7

13. Which statement is true about the modulation signals shown below?



- A: I is carrier wave, II is frequency modulated signal and III is amplitude modulated signal.
- B: I is input signal, II is frequency modulated signal and III is amplitude modulated signal.
- C: I is input signal, II is amplitude modulated signal and III is frequency modulated signal.
- D: I is carrier wave, II is amplitude modulated signal and III is frequency modulated signal.

14. In a series RC circuit as the frequency increases, the phase difference between I and V?

- A: Increases
- B: Decreases
- C: Remains same
- D: First increase then decrease.

15. In an LR circuit of 3 mH inductance and 4W resistance, e.m.f. E = 4 cos 1000 t volt is applied. The current amplitude is?

- A: 0.8 A
- B: 4/7 A
- C: 1 A
- D: $4 / \sqrt{7}$

16. In three phases AC, Voltage difference between any two terminals of the three phases is?

- A: 0 V
- B: 120 V
- C: 230 V
- D: 400 V

17. Which of the following is true about the parallel RLC circuit at resonating frequency?

Impedence of the circuit is maximum and equal to R.

Current is minimum.

Current through inductor and capacitor may each be much larger than the source current.

- A: i only
- B: ii only
- C: i and ii only
- D: i, ii and iii.

18. If resistance of 100 ohms, inductance of 0.5 Henry and capacitance of 10×10^{-6} F are connected in series through 50 hertz AC supply, the impedance will be?

- A: 1.87 Ohms
- B: 18.7 Ohms
- C: 190 Ohms
- D: 283 Ohms

19. In RLC series AC circuit, when $X_L = X_C$ then impedance is ?

- A: Minimum
- B: Maximum
- C: Zero
- D: Depends on the circuit arrangement.

20. When a DC voltage of 200 V is applied to a coil of self-inductance $(2\sqrt{3} / \pi)$ H, a current of 1 A flows through it. But by replacing DC source with AC source of 200 V, the current in the coil is reduced to 0.5 A. Then, the frequency of AC supply is?

- A: 100 Hz
- B: 75 Hz
- C: 60 Hz
- D: 50 Hz

TEST 4

1. **The average power in case of A.C. series circuit is?**

   - A: $P = VI$
   - B: $P = VI \cos \Theta$
   - C: $P = VI \sin \Theta$
   - D: $P = I^2R$

2. **The r.m.s value of A.C. current is ?**

   - A: 0
   - B: $0.7\ I_0$
   - C: $0.8\ I_0$
   - D: $0.9\ I_0$

3. **In an inductor the phase difference between the current and voltage is ?**

   - A: Current lags voltage by 90^0
   - B: Voltage lags current by 180^0
   - C: Current leads voltage by 90^0
   - D: Current lags voltage by $3\pi/2$

4. **The average power dissipated in a pure inductor is ?**

   - A: More than a pure capacitor.
   - B: Less than a pure capacitor.
   - C: Zero
   - D: Depends on the frequency of the voltage.

5. **The angular frequency of resonance circuit is ?**

   - A: $\omega = 1 / LC$
   - B: $\omega = 1 / (LC)^{1/2}$
   - C: $\omega = LC$
   - D: $\omega = (LC)^{1/2}$

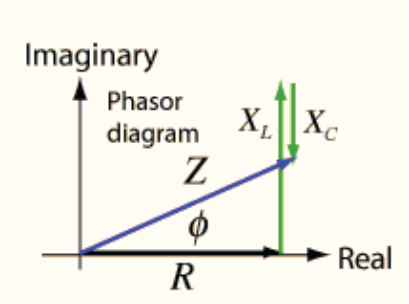
6. **In equation $P = VI \cos \Theta$; the factor $\cos \Theta$ is called?**

   - A: Phase angle
   - B: Phase shift
   - C: Power factor
   - D: None of the above.

7. **If the frequency of A.C is large the reactance of capacitor is ?**

   - A: Large
   - B: Small
   - C: Zero
   - D: Reactance is independent of frequency.

8. The phasor diagram given below is for what type of circuits?



- A: RC series circuit
- B: RL series circuit
- C: LC series circuit
- D: RLC series circuit

9. Phase of AC current wave at negative peak is?

- A: 0
- B: π / 2
- C: π
- D: 3π / 2

10. An A.C voltmeter reads 250 volts, its peak voltage is ?

- A: 120 V
- B: 250 V
- C: 353 V
- D: 500 V

11. Which of the following is true about the series RLC circuit at resonating frequency?

Impedance of the circuit is minimum and equal to R.

Current is maximum.

Voltage drop across inductor and voltage drop across capacitor may be much larger than the source voltage.

- A: i only
- B: ii only
- C: i and ii only
- D: i, ii and iii.

12. A DC battery can pass current continuously through?

Resistor

Capacitor

Inductor

- A: i only
- B: i and ii only
- C: i and iii only
- D: i, ii and iii.

13. The electrical oscillators are used in?

- A: Metal detectors
- B: Amplifier
- C: Diode
- D: Logic gates.

14. If an alternating voltage is represented as E = 141 sin (628t), then R.M.S value of the voltage and the frequency respectively are?

- A: 141 V, 628 Hz
- B: 100 V, 50 Hz
- C: 100 V, 100 Hz
- D: 141 V, 100 Hz

15. For the reception of electromagnetic wave we use a variable?

- A: Resistor
- B: Capacitor
- C: Inductor
- D: None

16. At resonance frequency the power factor is?

- A: Zero
- B: One
- C: Two
- D: Three

17. Which of the following are electromagnetic waves?

- A: Infra-red waves
- B: Visible spectrum
- C: Micro waves
- D: All of them.

18. In case of phase diagram the vector rotates?

- A: Clockwise
- B: Anti clockwise
- C: Remain stationary
- D: May rotate both ways.

19. F.M stands for?

- A: Frequency modulation
- B: Frequency metal
- C: Frequency member
- D: Frequency measurement

20. An A.C choke has?

- A: High inductance
- B: Small Resistance
- C: Extremely small power dissimation.
- D: All of the above.

PHYSICS OF SOLIDS

TEST-1

1. **Lead and copper are?**
   - A: Brittle substances
   - B: Plastic substances.
   - C: Polymers
   - D: Ductile substances.

2. **If by applying force of 100 N the length of wire is increased by 0.05 m. What is the energy stored in the wire?**
   - A: 5 J
   - B: 2.5 J
   - C: 2000 J
   - D: 1000 J

3. **The magnetic field of orbits and spin axes of electron add to zero in?**
   - A: Ferromagnetic substances.
   - B: Paramagnetic substances.
   - C: Diamagnetic substances.
   - D: None of the above.

4. **Ability of a body to return to its original shape is known as?**
   - A: Stress
   - B: Strain
   - C: Elasticity
   - D: Modulus

5. **A 1 m long steel wire is stretched by 20 cm when subject to a stretching force. What is the strain on the wire?**
   - A: 0.2
   - B: 2
   - C: 20
   - D: 200

6. **The ratio of tensile stress to tensil strain is called?**
   - A: Modulus of elasticity
   - B: Bulk Modulus
   - C: Shear Modulus
   - D: Young's Modulus

7. **Transition from solid to liquid is abrupt in what kind of solids?**
   - A: Amorphous solids
   - B: Polymeric solids
   - C: Crystalline solids
   - D: Glassy solids

8. **Which of the following is the formula for tensile strain?**
   - A: $\tan \Theta$
   - B: $\Delta A / A$
   - C: $\Delta V / V$
   - D: $\Delta L / L$

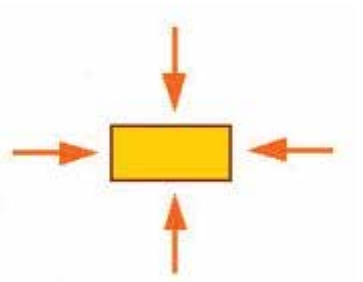
9. The measure of the deformation in a solid when a stress is applied to it is called?

- A: Young's modulus
- B: Elastic constant.
- C: Strain
- D: Elasticity.

10. Shear stress chages _____ of the object?

- A: Length
- B: Shape
- C: Volume
- D: None of the above.

11. The force depicted by arrows in the given figure may result in?



- A: Volumetric strain.
- B: Tensile strain.
- C: Shear strain.
- D: None of the above.

12. Solids with constant regular patters are known as?

- A: Glassy solids
- B: Crystalline solids
- C: Amorphouse solids.
- D: Polymeric solids.

13. Which of the following graph represents Young's Modulus in a Stress, Strain graph?

- A: Area under graph
- B: Gradient of graph
- C: Reciprocal of gradient of graph
- D: Product of gradient and area of curve

14. Which of the following statement is true?

Crystalline solids have definite melting point

Glassy solids do not have a definite melting point

Polymers have poor crystalline structure.

- A: I and III only.
- B: I & II only
- C: II and III only.
- D: I, II and III.

15. Which of the following is a measure of shear strain?

- A: tan Θ
- B: ΔV / V
- C: ΔL / L
- D: None of the above.

16. Which of the following is a polymeric solid?

- A: Zinc
- B: Plastic
- C: Glass
- D: NaCl

17. Which of the following is the statement of Hooke's law?

- A: Stress is directly proportional to force per unit area.
- B: Strain is a direct impact of stress in the plastic region of the stress-strain curve.
- C: Strain is directly proportional to stress within the proportional limit of the stress-strain curve.
- D: Strain is directly proportional to stress in the within the elastic limit of the stress-strain curve.

18. Semi conductor in pure form is called?

- A: Extrinsic semi conductors.
- B: Doped semi conductors
- C: P and N type semi conductors.
- D: Intrinsic semi-conductors.

19. Substances that undergo plastic deformation until they break are called?

- A: Brittle
- B: Ductile
- C: Elastic
- D: Inelastic

20. Which of the following have same SI units?

Stress

Pressure

Modulus of elasticity

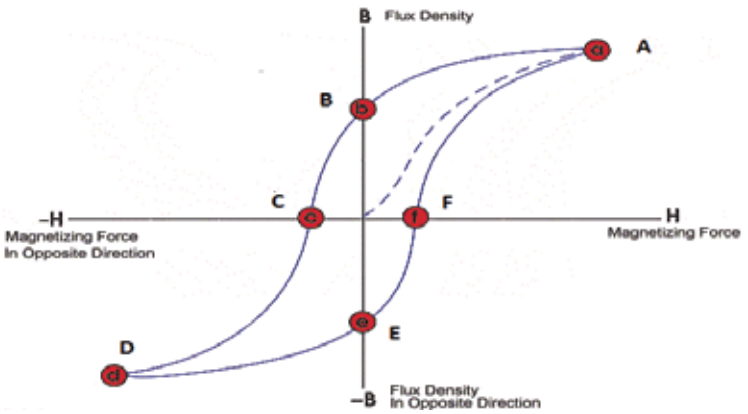
- A: I and II
- B: I and III
- C: II and III
- D: I, II and III.

TEST-2

1. **Which of the following statement is the most appropriate about super conductor's special conducting property?**

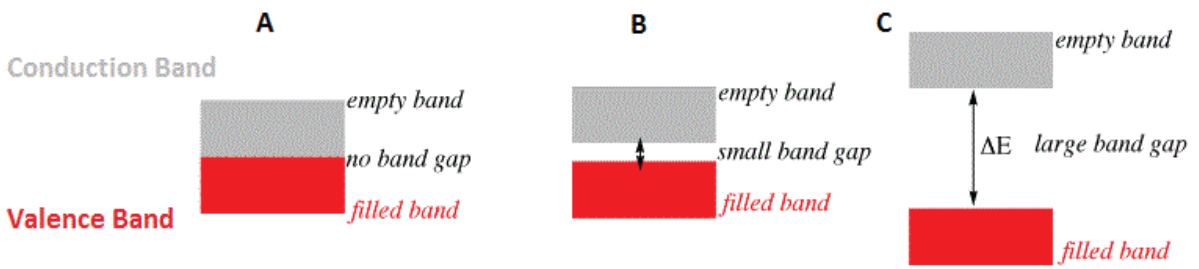
   - A: Zero resistance below critical temperature.
   - B: Zero resistance above critical temperature.
   - C: Zero resistance at 0 K (Absolute zero)
   - D: Zero resistance at room temperature.

2. **What are the magnetic saturation points in the figure below?**



   - A: B and E
   - B: A and D
   - C: C and F
   - D: A only.

3. **As per energy band theory. Which of the following is a conductor?**



   - A: A
   - B: B
   - C: C
   - D: A and B

4. **Which statement is correct?**

   - A: Elasticity is that property of a body which enables a body to regains its original dimension
   - B: Elasticity is that property of a body that does not allow to return its original shape
   - C: Elasticity is that property of a body that does allow to return its original shape and dimension after stress is removed
   - D: Elasticity is that property of a body that does not obeys hook's law

5. **Which of the following is the characteristic of semi-conductors?**

   Partially filled conduction band

   A full valence band

   Narrow gap between conduction and valence band

   - A: I only
   - B: II only
   - C: I and III
   - D: I and II

6. **P type semiconductor is formed by doping intrinsic semiconductor with?**
   - A: Mono-divalent impurity
   - B: Bi-valent impurity
   - C: Tri-valent impurity
   - D: Penta-valent impurity

7. **The orbits and spin axes of electrons support each other's magnetic field to create a strong magnetic effect in?**
   - A: Ferromagnetic substances.
   - B: Diamagnetic substances.
   - C: Paramagnetic substances.
   - D: None of the above.

8. **Silicon is perfect insulator at?**
   - A: Room temperature
   - B: 100 K
   - C: 0 K
   - D: Si is a semi-conductor and does not behave as insulator at any temperature.

9. **Bulk modulus is defined as?**
   - A: Ratio of volumetric stress to strain.
   - B: Ratio of tensile stress to strain.
   - C: Ratio of shear stress to strain.
   - D: Ratio of compressive stress to strain.

10. **The orbits and spin axes of electrons support each other's magnetic field to create a weak magnetic effect in?**
    - A: Ferromagnetic substances.
    - B: Paramagnetic substances
    - C: Diamagnetic substances.
    - D: None of the above.

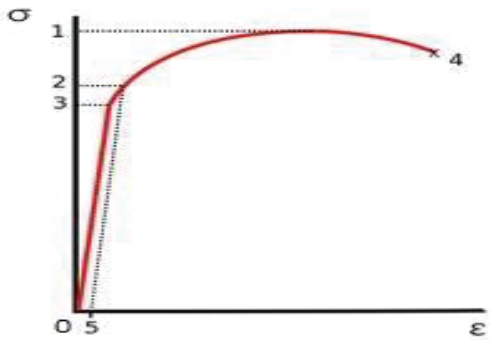
11. If current carried by holes in a semiconductor is 15 mA and current carried by electrons is 5 mA. What is the total current flowing in the semiconductor?

- A: 15 mA
- B: 5 mA
- C: 20 mA
- D: 10 mA

12. A wire fixed at the upper end stretches by length L by applying a force F. The work done in stretching is?

- A: F * L
- B: 2 F * L
- C: F / 2L
- D: 0.5 * F * L

13. Proportional limit of the stress-strain curve given below is?



- A: 1
- B: 2
- C: 3
- D: 4

14. In stress–strain curve, the area up to the elastic limit stress indicates which mechanical property?

- A: Ductility
- B: Strength
- C: Resiliance
- D: Strain

15. If stress on a material is reduced by 4 times, the strain is?

- A: Increased by 4 times.
- B: Increased by 2 times.
- C: Reduced by 4 times.
- D: Depends on the Young's modulus of the material.

16. As temperature of a substance increases, the Young's modulus?

- A: Remains constant.
- B: Increases
- C: Decreases.
- D: May increase or decrease.

17. A stress that changes length of the object is called?

- A: Shear stress
- B: Volume stress
- C: Tensile stress
- D: Length stress.

18. The modulus of elasticity is dimensionally equivalent to?

- A: Strain
- B: Surface tension
- C: Stress
- D: Coefficient of viscosity.

19. A 4.0m long wire is subjected to stretching force and its length increases by 40cm. The percent of elongation which the wire undergoes is:

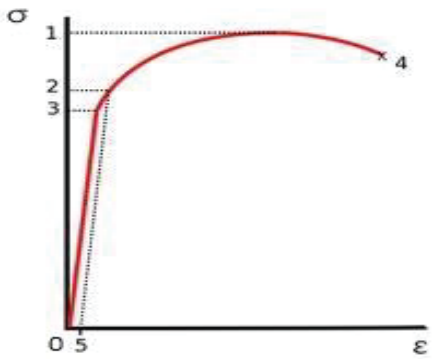
- A: 0.10%
- B: 40%
- C: 10%
- D: 20%

20. N type semiconductor is formed by?

- A: Doping a semiconductor with mono-valent impurity.
- B: Doping a semiconductor with bi-valent impurity.
- C: Doping a semiconductor with trivalent impurity.
- D: Doping a semiconductor with penta-valent impurity.

TEST-3

1. **Which point represents the ultimate tensile strength of the material in the stress-strain curve given below?**

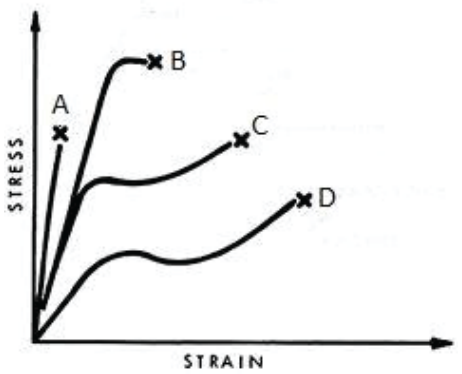


- A: 1
- B: 2
- C: 3
- D: 4

2. **An aluminum wire ($Y = 7 \times 10^{10}$ N/m^2) of diameter 3 mm supports a 40 kg mass. In order to have the same elongation in a copper wire ($Y = 12 \times 10^{10}$ N/m^2) of the same length under the same weight, the diameter should be in mm? Hint: $(7/12)^{0.5} = 0.75$**

- A: 1.80
- B: 2.1
- C: 2.3
- D: 3.8

3. **In the stress-strain curves given below, which material is the strongest?**



- A: A
- B: B
- C: C
- D: D

4. **A spherical ball of volume 1,000 cm^3 is subjected to a hydrostatic pressure of 90 N/mm^2, and bulk modulus of the material is 180 kN/mm^2 What is the change in volume of the ball?**

   - A: 0.005 mm^3
   - B: 0.05 mm^3
   - C: 50 mm^3
   - D: 500 mm^3

5. **A steel wire of length 1 meter with cross sectional area 0.02 * $10^{-4} m^2$ is applied a force of 100N. Find the energy stored in the wire if Young's modulus is 5 * 10^{11}?**

   - A: 5 * 10^{-3} J
   - B: 10 * 10^{-3} J
   - C: 50 * 10^{-3} J
   - D: 100 * 10^{-3} J

6. **If a steel cable holding a cable car has a stress of x KPa. If four more cables are attached to the car, the stress on each cable is?**

   - A: x
   - B: x/4
   - C: x/5
   - D: Depends on the Young's modulus of the material

7. **Area of the hysteresis loop measures?**

   - A: Amount of current required to magnetize a ferromagnetic material.
   - B: Amount of current required to magnetize a paramagnetic material.
   - C: Energy needed to mangetize and demangetize during each cycle of magnetic current.
   - D: Current needed to mangetize and demangetize during each cycle of magnetic current.

8. **A wire of cross sectional area 0.01 m^2 has young's modulus of 1500 Pa. What force would cause a strain of 5 in that wire?**

   - A: 40 N
   - B: 60 N
   - C: 75 N
   - D: 100 N

9. **A rubber cord of cross-sectional area 2cm^2 has a length of 1m. when a tensile force of 10N is applied, the length of the cord increases by 1cm. what is the young's modules of rubber?**

   - A: 2 x 10^8 Nm^{-2}
   - B: 5 x 10^6 Nm^{-2}
   - C: 0.5 x 10^{-6} Nm^{-2}
   - D: 0.2x10^{-6} Nm^{-2}

10. Below is the Young's modulus for three materials at stress of 10 Kpa? Which one would have highest change in length for a given stress?

A	B	C
70	25	100

- A: A
- B: B
- C: C
- D: Cannot determine from the given information

11. Permanent magnets have?

High retentively

Large coercive force

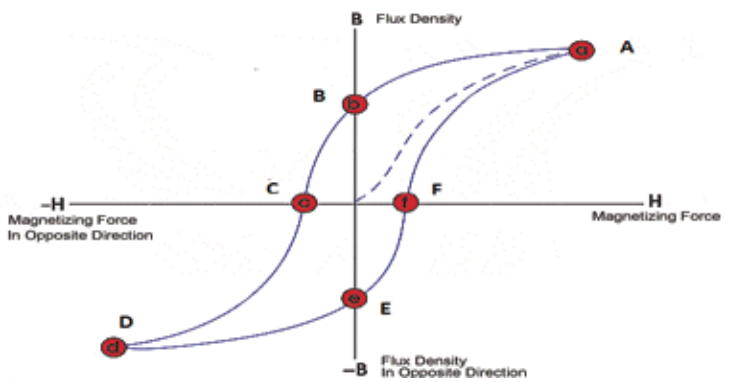
Large area of hysteresis loop.

- A: I only
- B: I and III only
- C: II and III only
- D: I, II and III only.

12. A certain stress applied to elastic materials produces a certain strain in it. If the elastic limit is not exceeded, the energy gained per unit volume of the material is given by?

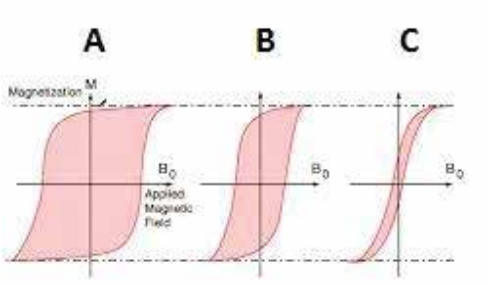
- A: Stress * Strain
- B: Stress / Strain
- C: 1/2 * Stress * Strain
- D: None of the above.

13. Which point shows the magnitude of coercive current in the following hysteresis curve?



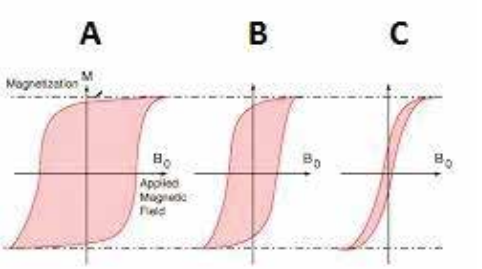
- A: B and E
- B: A and D
- C: C and F
- D: None of the above.

14. Which of the following is most likely to be the hysteresis curve for a permanent magnet?



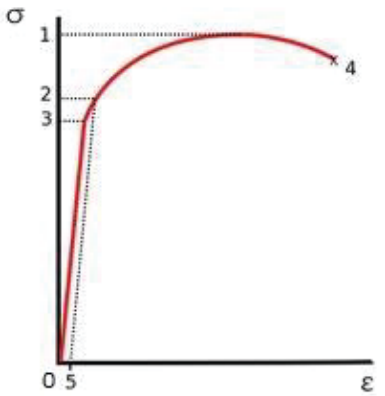
- A: A
- B: B
- C: C
- D: None of the above.

15. Which of the following should be the hysteresis loop of the magnetic core of mortor?



- A: A
- B: B
- C: C
- D: Mortor core is not magnetized.

16. The material in the stress strain curve given below is elastic in the region?

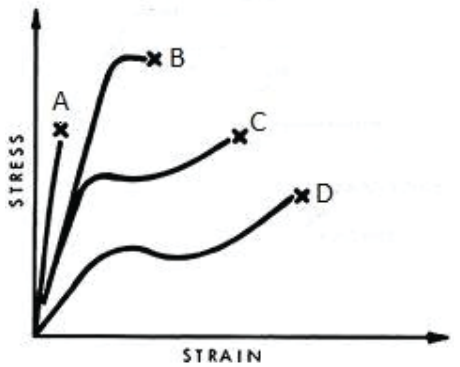


- A: 0-3
- B: 0-2
- C: 0-1
- D: 2-1

17. Two wires of the same material have diameters in the ratio 2 : 1 and lengths in the ratio 1 : 2. If they are stretched by the same force, their elongations will be in the ratio?

- A: 8 : 1
- B: 1 : 8
- C: 1 : 4
- D: 4 : 1

18. The figure below shows the stress-strain curve for four materials. Which one is of them is brittle?



- A: A
- B: B
- C: C
- D: D

19. A wire of cross section A and length l is subjected to load L . A second wire of the same material with an area 2A and length 2l is subjected to the same load L. If extension for first wire is X and for second wire it is Y fing the ratio X/Y?

- A: 1/4
- B: 1/2
- C: 1/1
- D: 2/1

20. Sodium chloride, NaCl usually crystallizes in a face centered cubic lattice. How many ions are in contact with any single Na^+ ion?

- A: 8
- B: 6
- C: 4
- D: 2

TEST-4

1. **The stress-strain graph, deduced the following limits reach successively:**

   - A: Proportional limit, elastic limit, yield limit
   - B: Proportional limit, yield limit, elastic limit
   - C: Yield limit, proportional limit, elastic limit
   - D: Elastic limit, proportional limit, yield limit

2. **A stress on a solid may change its?**

   Length

   Volume

   Shape

   - A: I only
   - B: I and III only
   - C: III only
   - D: I, II and III.

3. **A wooden log of mass 10Kg is suspended by attaching it to a steel wire of radius 3 mm. What is the stress on the wire?**

   - A: 0.35 KPa
   - B: 3.5 KPa
   - C: 0.35 MPa
   - D: 3.5 MPa

4. **Two wires of same length and same material but radii in the ratio 1 : 2 are stretched by unequal forces to produce equal elongation. What is the ratio of two forces?**

   - A: 1 : 4
   - B: 1 : 2
   - C: 2 : 1
   - D: 4 : 3

5. **If tensile strain on a piece of wire is 0.075. Percentage elongation is?**

   - A: 0.075 %
   - B: 0.75 %
   - C: 7.5 %
   - D: Not enough information given to solve the question.

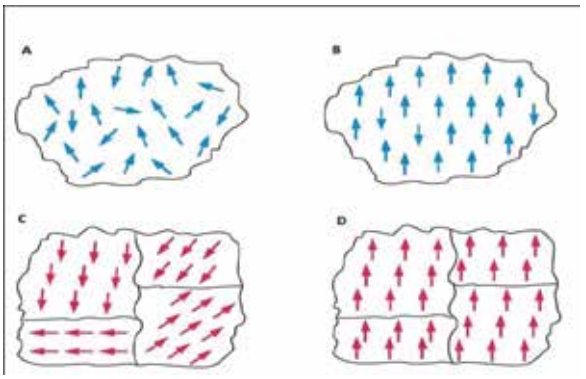
6. **Valence and conduction band over lap for?**

- A: Conductors
- B: Insulators
- C: Semi-conductors
- D: None of the above.

7. **In cubic crystals all sides meet at?**

- A: 30 Degrees
- B: 60 Degrees
- C: 90 Degrees
- D: 120 Degrees

8. **Which of the following shows the domains in the presence of a magnetic field?**



- A: B, C and D
- B: D only.
- C: B only
- D: B and D.

9. **Within each domain, the magnetic field of all electrons is?**

- A: Parallel
- B: Perpendicular
- C: Opposite.
- D: None of the above.

10. **The forces depicted in the figure below would result in?**

- A: Tensile strain.
- B: Volumetric strain.
- C: Compressive strain.
- D: Shear strain.

11. **Which of the following statement is true?**

- A: Strain is an effect of stress
- B: Stress is an effect of strain
- C: Elasticity is an effect of stress
- D: Elasticity is an effect of strain.

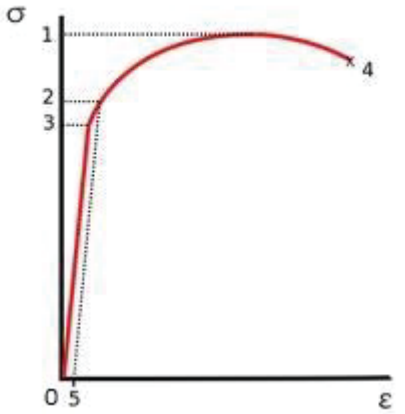
12. A wire is stretched by a force which causes an extension. The energy is stored in it only when:

- A: The weight of wire is negligible
- B: The crossectional area of wire remains constant
- C: The wire is not stretched beyond its elastic limit
- D: Extension of wire is proportional to applied force

13. Semiconductors have how many kinds of charge carriers?

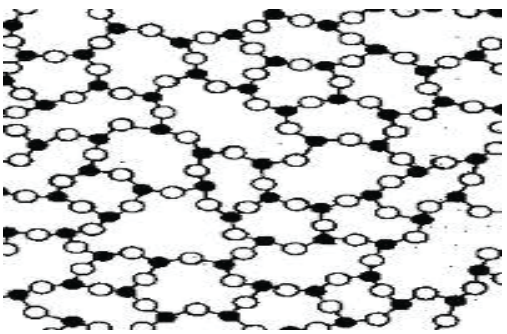
- A: 1
- B: 2
- C: 3
- D: 4

14. Identify yield point in the stress-strain curve given below?



- A: 1
- B: 2
- C: 3
- D: 4

15. The figure below show the pattern for?



- A: Crystalline solids
- B: Amorphous solids
- C: Polymeric solids
- D: None of the above.

16. An insulator has which of the following characteristics?

Empty conduction band (no free electrons)

A full valence band

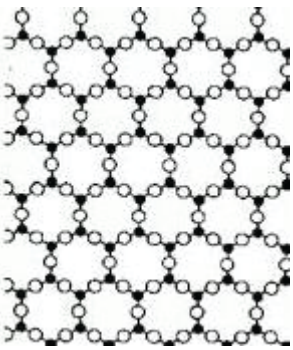
Large gap between conduction and valence band

- A: I only
- B: I and II only
- C: I and III only
- D: I, II and III

17. At 0 K semiconductors have?

- A: No electron in the conduction band.
- B: No electron in the valence band.
- C: No gap between valence and conduction band.
- D: Two free electrons.

18. The figure below shows the patters of?



- A: Crystalline solids
- B: Amorphous solids
- C: Polymeric Solids.
- D: None of the above.

19. Which of the following is NOT a crystalline solid?

- A: Copper
- B: Zinc
- C: Iron
- D: They are all crystalline solids.

20. Which of the following has intermediate structure between order and disorder?

- A: Crystalline solids.
- B: Amorphous solids.
- C: Polymeric solids.
- D: Glassy solids.

ELECTRONICS

TEST-1

1. **Potential barrier across the PN junction of Germanium is?**

   A: 0 V
   B: 0.3 V
   C: 0.7 V
   D: 0.9 V

2. **Which of the following is the smallest section of a transistor in terms of size?**

   A: Emitter
   B: Base
   C: Collector.
   D: They are all of same size

3. **The P-N junction diode works as an insulator, if connected?**

   A: To AC current
   B: Forward Biased
   C: Reverse Biased
   D: None of the above.

4. **Transistor can be described as?**

   A: Amplifier
   B: Switch
   C: Inverter
   D: All of the above.

5. **Which of the following is the most commonly used material in the semi-conductors?**

   A: Copper.
   B: Iron
   C: Soft Iron grains.
   D: Silicon.

6. **Input resistance of operational amplifier is?**

   A: Zero
   B: Minimal (less than 10 ohms)
   C: High (in the range of kilo ohms)
   D: Very high (in the range of mega ohms)

7. **How many basic operations are there in Boolean algebra?**

   A: 2
   B: 3
   C: 5
   D: 6

8. **Any signal at the inverting input of the operational amplifier is?**

   A: Amplified with a phase shift of 90^o
   B: Amplified with a phase shift of 180^o
   C: Amplified with a phase shift of 270^o
   D: Amplified with a phase shift of 360^o

9. When a PN junction is reverse biased, which of the following is true?

- A: Value of resistance is a few ohms
- B: Diode behaves as ohmic device.
- C: No current flows in the circuit.
- D: Electrons move across the PN junction.

10. Charge carriers are not present in?

- A: P region
- B: N region
- C: PN Junction
- D: Group 11 elements.

11. Semi conductor diodes may perform which of the following function?

- A: Rectification
- B: Emitt light
- C: Detect light
- D: All of the above.

12. Potential barrier across PN junction of silicon is?

- A: 0 V
- B: 0.3 V
- C: 0.7 V
- D: 0.9 V

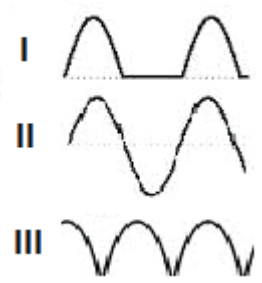
13. The manipulation of binary information is done by logic circuits called ____.

- A: Gates
- B: Trunks
- C: Truth tables
- D: Networks

14. Charge carrier in P region is?

- A: Electrons
- B: Protons
- C: Holes
- D: None of the above.

15. Which of the following is the output of the full wave rectifier?

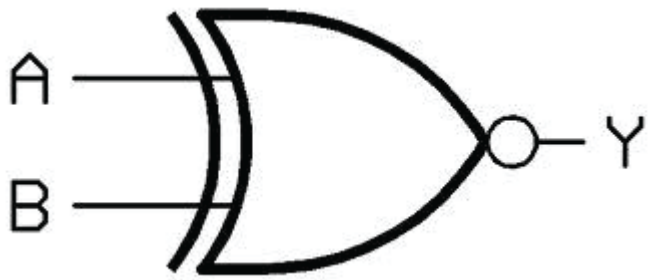


- A: I only
- B: II only
- C: III only
- D: Both I and III depending on the configuration.

16. NOT gate is also known as?

- A: Decoder
- B: Multiplexer
- C: Inverter.
- D: Encoder.

17. The gate given in the figure below is?



- A: XNOR
- B: XOR
- C: NOR
- D: NAND

18. The input-output relationship of gates is given by?

- A: Logic gates
- B: Algebraic Table
- C: Truth Table
- D: None of the above.

19. If V_o = 12 V and V_{in} is 2 * 10^{-2} volts. The gain of the amplifier is?

- A: 6
- B: 12
- C: 600
- D: 2400

20. The mathematical operation for NOR operation is

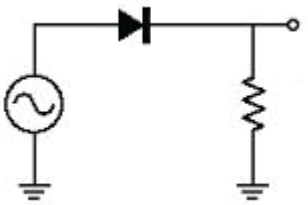
- A: $X = \overline{A + B}$
- B: $X = \overline{A.B}$
- C: $X = \overline{A + B}.\overline{A + B}$
- D: All of the above

TEST-2

1. **In a reverse bias, prior to the breaking point the current is?**

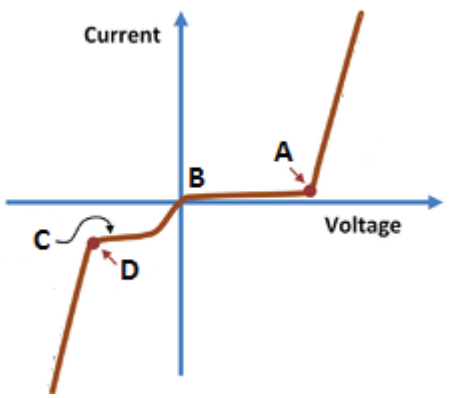
- A: Proportional to voltage.
- B: Constant.
- C: Zero.
- D: None of the above.

2. **The given would produce ?**



- A: Half wave rectification with positive wave.
- B: Half wave rectification with negative wave.
- C: Full wave rectification
- D: Smooth DC current.

3. **Potential barrier is broken at which point in the graph given below for a PN junction?**



- A: A
- B: B
- C: C
- D: D

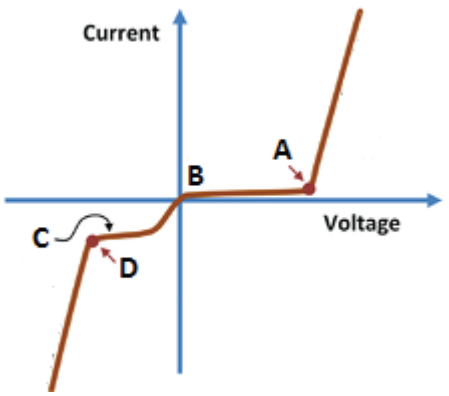
4. **An AND gate has four inputs A, B, C, D. The input that produces an output 1 is?**

- A: 0011
- B: 1000
- C: 0000
- D: 1111

5. **Which of the following may be used to smooth out the uni-directional wave?**

- A: Half wave rectifier
- B: Full wave rectifier
- C: Filter
- D: None of the above.

6. **For the graph given below, the PN junction is damaged at which point?**

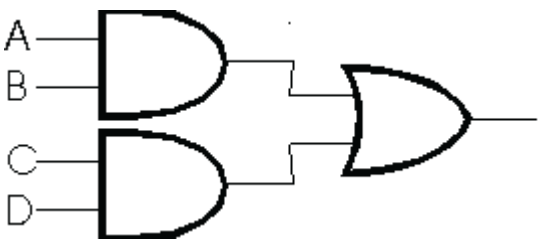


- A: A
- B: B
- C: C
- D: D

7. **For which of the following diodes P region surrounds the N region?**

- A: Photo voltaic cell.
- B: Light emitting diode.
- C: Photo diode.
- D: No diode has such junction arrangement.

8. **What is the output of the Boolean logic diagram given below,**



- A: $\overline{(A+B)}.\overline{C+D)}$
- B: $(\bar{A}+\bar{B}).(\bar{C}+\bar{D})$
- C: $\bar{A}\bar{B}+\bar{C}\bar{D}$
- D: AB + CD

9. Which of the following statement is true about operational amplifiers?

They have two input terminals.

They have one output terminal.

Open loop gain is zero.

- A: I only
- B: III only
- C: I and II only
- D: I, II and III.

10. Which of the following statements is true?

$I_E = I_B + I_C$ for NPN transistors
$I_E = I_B + I_C$ for PNP transistors
$I_E = I_C - I_B$ for PNP transistors

- A: I only
- B: II only
- C: I and II only.
- D: I and III only.

11. Which of the following statement is true?

P junction is formed by adding pentavalent impurity to a semiconductor.

N junction is formed by adding a trivalent impurity to a semiconductor.

- A: I only
- B: II only
- C: Both I and II
- D: Nether I nor II.

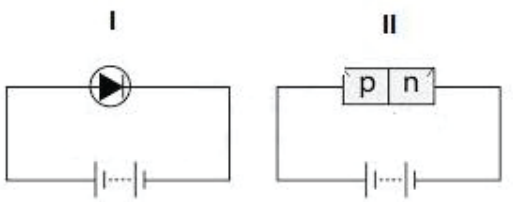
12. The current gain β of a transistor is 40. To change the collector current by 160 mA at constant V_{CE}, the necessary change in the base current is?

- A: 0.25
- B: 4 micro A
- C: 4 mA
- D: 40 mA

13. For XOR gate output is 1 only if?

- A: Both the inputs are 1.
- B: Both the inputs are 0.
- C: Both the inputs are same.
- D: Both the inputs are different.

14. Which of the statements is true about the two circuit arrangements given below?



- A: Only I is forward biased
- B: Only II is forward biased
- C: Both I and II are forward biased
- D: Neither I nor II is forward biased

15. Current flowing between two input terminals of operational amplifier is?

- A: Zero
- B: In the range of milli amperes.
- C: In the range of amperes.
- D: None of the above.

16. When trivalent impurity is added to a semiconductor, the resulting material is?

- A: P Junction.
- B: N Junction
- C: PN Junction
- D: None of the above.

17. Which of the following statement is true for the transistors?

Base is thinner than the emitter and collector

Base has larger concentration of impurity than emitter and collector.

Emitter has greater concentration of impurity than collector.

- A: I only
- B: II only
- C: I and III only
- D: I, II and III.

18. The collector current is 1.5mA. If the current gain is 50, the base current is?

- A: 3 μA
- B: 30 μA
- C: 150 μA
- D: 3 mA

19. Number of valence electrons in the semi-conductor materials is?

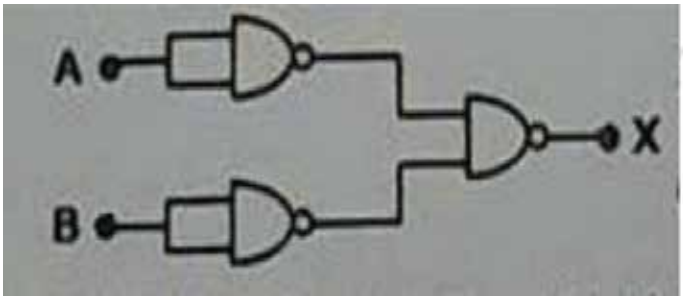
- A: 3
- B: 4
- C: 5
- D: 6

20. The base current is 50uA. If the current gain is 100, the collector current is closest in value to?

- A: 50uA
- B: 500 uA
- C: 2 mA
- D: 5 mA

TEST-3

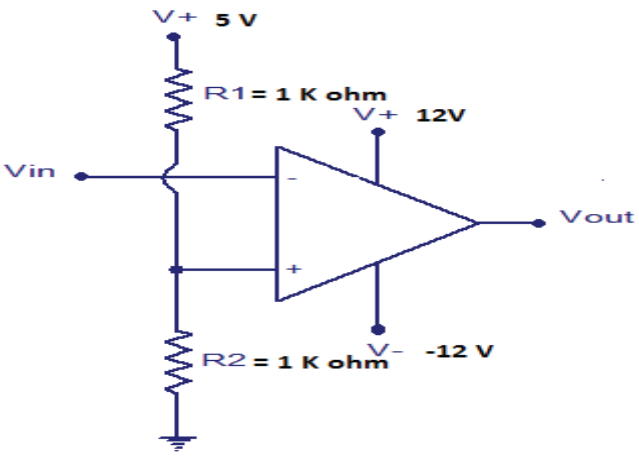
1. **The NAND gates are connected in the figure**



Which gate is formed at X?

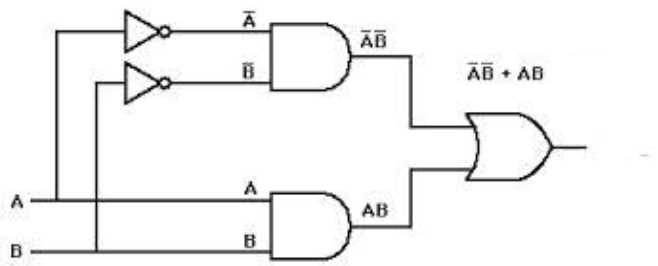
- A: OR
- B: AND
- C: NOR
- D: NAND

2. **If V_{in} is 5 V what is the V_{out} for the op-amp comparator given below?**



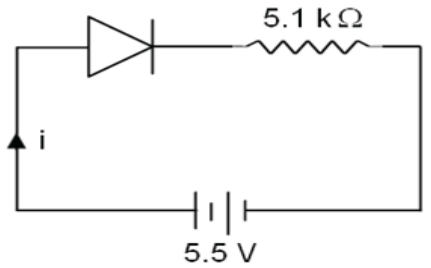
- A: 2.5 V
- B: 5 V
- C: 12 V
- D: -12 V

3. **The logic circuit given below is for which type of gate?**



- A: NOR
- B: XOR
- C: XNOR
- D: None of the above.

4. **A p-n junction diode is connected to a battery of emf 5.5 V and external resistance of 5.1 k ohm. The barrier potential in the diode is 0.4 V. The current in the circuit is?**



- A: 1.08 mA
- B: 0.08 mA
- C: 1 mA
- D: 1 A

5. **Which of the following semi-conductor diodes works in the reverse bias?**

- A: Light emitting diode.
- B: Photo diode.
- C: Photo voltaic cell.
- D: None of the above.

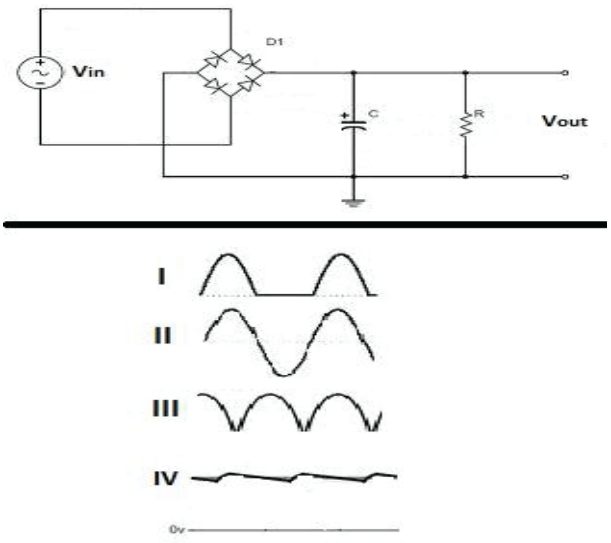
6. **In regard to NAND gate the following statements are made.**

(1) It is equivalent to an AND gate followed by an inverter.
(2) If all the inputs are low, the output is low.
(3) If all the input is high the output is low.

Which of the above statements are correct?

- A: 1, 2 and 3
- B: 2 and 3
- C: 1 and 3
- D: 1 only

7. **If input to the circuit given below is an alternating sinosidal wave, output would be?**

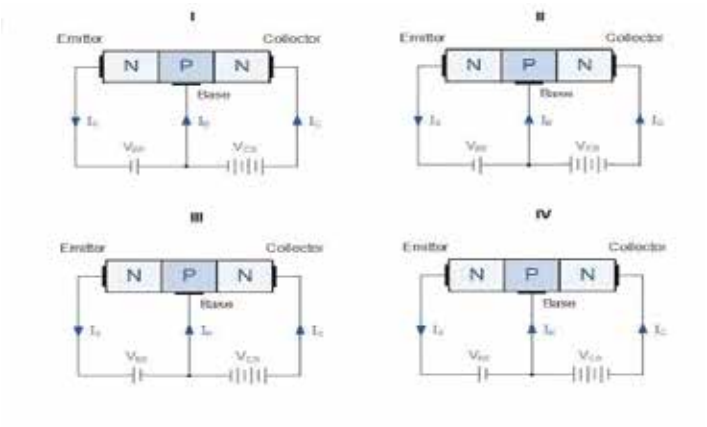


- A: I
- B: II
- C: III
- D: IV

8. **The current gain of a transistor in common emitter mode is 49. The change in collector current and emitter current corresponding to the change in base current by 5.0 µA, will be?**

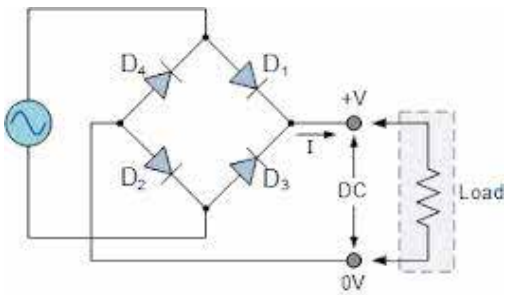
- A: 245 µA, 250 µA
- B: 240 µA, 235 µA
- C: 260 µA, 255 µA
- D: None of the above.

9. **Which of the following shows the normal operation for an NPN transistor?**



- A: I
- B: II
- C: III
- D: IV

10. **In the circuit below which diodes would be open during the positive half of the input wave? Input voltage is positive.**

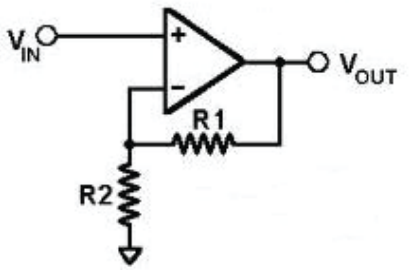


- A: D_4 and D_1
- B: D_2 and D_3
- C: D_4 and D_3
- D: D_1 and D_2

11. **In a reverse biased diode, when the applied voltage changes by 1 V, the current is found to change by 0.5 µA. The reverse bias resistance of the diode is?**

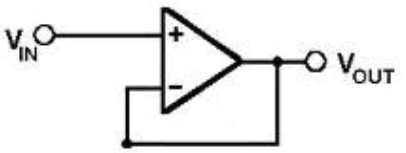
- A: $2 * 10^5$ ohms
- B: $2 * 10^6$ ohms
- C: Infinity.
- D: Cannot be determined.

12. If Vout = 10 V, R_1 = 200 k ohms and R_2 = 10 k ohms. What is gain of the given op-amp?



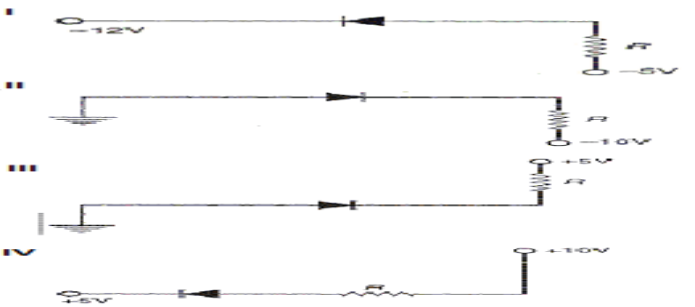
- A: Need information about V_{IN} to answer the question.
- B: 20
- C: 21
- D: 210

13. If V_{in} is 10 V what is the value of V_{out} for the circuit given below?



- A: 0 V
- B: 10 V
- C: Infinite
- D: Undetermined.

14. Which of the following diodes is/are reverse biased?

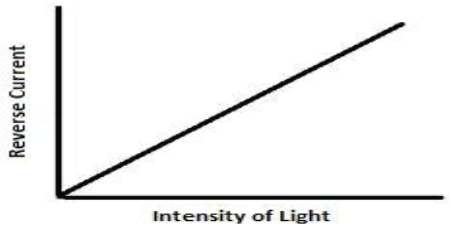


- A: I only
- B: III only
- C: IV only
- D: I, II and IV.

15. Which of the following diode works in the absence of any external bias?

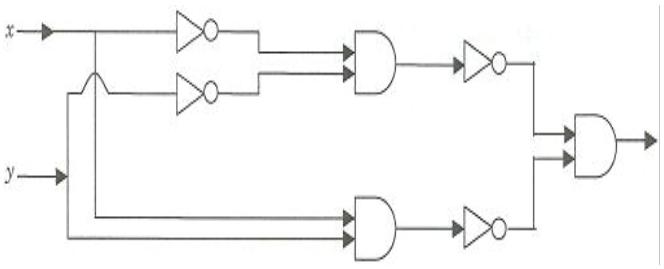
- A: Photo voltaic cell.
- B: Photo diode.
- C: Light emitting diode.
- D: None of the above.

16. The graphs below is for which kind of diode?



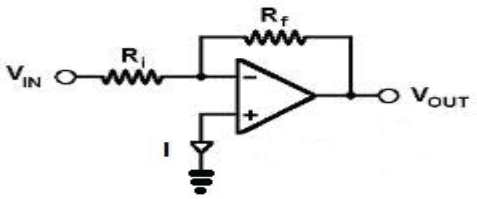
- A: Light emitting diode
- B: Photo diode.
- C: Photo voltaic cell.
- D: None of the above.

17. The logic circuit given below is for which type of gate?



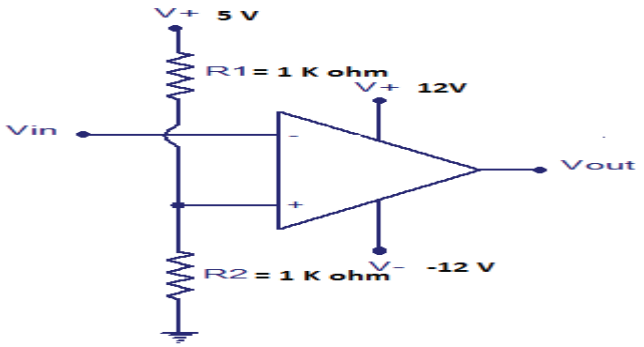
- A: XNOR
- B: NAND
- C: NOR
- D: XOR

18. If V_{IN} = 2V, R_i = 10 K ohms and R_f = 20 K ohms. What is the current I flowing to the ground in the given circuit?



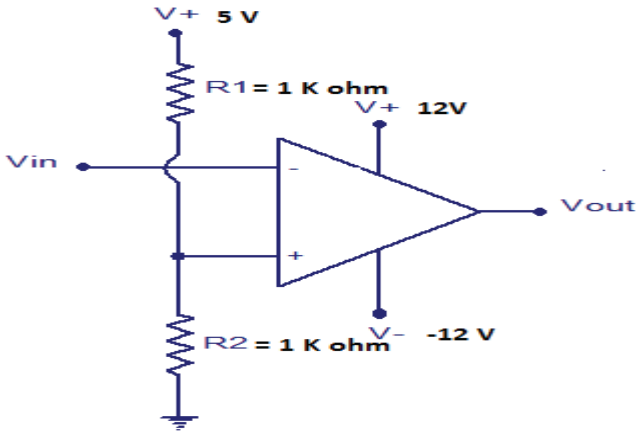
- A: 0 mA
- B: 0.2 mA
- C: 0.1 mA
- D: 0.06 mA

19. If V_{in} is a sinusoidal wave with peak of 5 V the output of the given circuit is?



- A: Sinusoidal wave with peak of 5 V
- B: Sinusoidal wave with peak of 12 V
- C: Square wave with peak of 5 V
- D: Square wave with peak of 12 V

20. If V_{in} = 2 V, what is V_{out} for the op-amp comparator given below?



- A: 2 V
- B: 5 V
- C: 12 V
- D: - 12 V

TEST-4

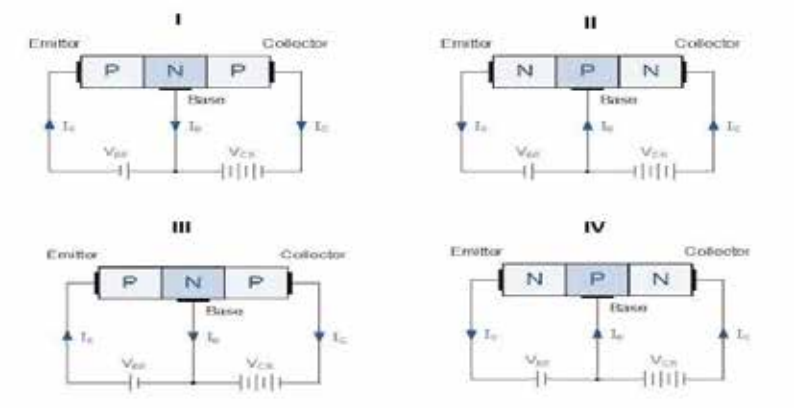
1. **Transistor switch is turned off by?**

   - A: Setting base current to zero.
   - B: Setting emitter current to zero.
   - C: Setting collector current to zero.
   - D: None of the above.

2. **Gain of the transistor is given by the formula?**

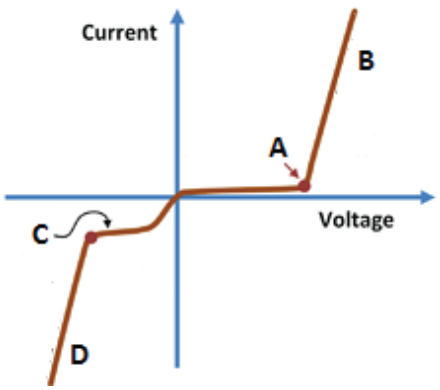
   - A: I_E / I_B
   - B: I_C / I_B
   - C: I_E / I_C
   - D: I_C / I_E

3. **Which of the following arrangements show the normal operation of transistors?**



   - A: II only
   - B: III only
   - C: I and IV
   - D: II and III

4. **For the graph given below for a PN junction. Reverse current flows at which point?**

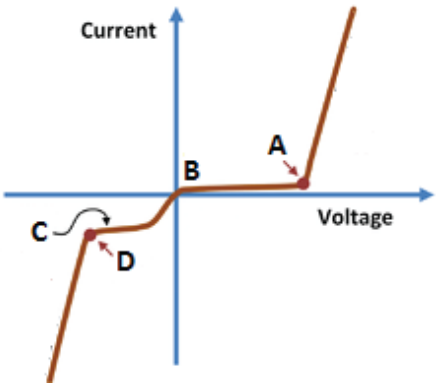


   - A: A
   - B: B
   - C: C
   - D: D

5. **Consider a logic circuit with three inputs A, B and C. The values assigned to A, B and C are such that $\overline{ABC} = \overline{A + B + C}$ Then $\bar{A}BC + A\bar{B}C + AB\bar{C}$ is equal to?**

- A: A + B + C
- B: ABC
- C: 0
- D: 1

6. **In the given graph for a PN juction, covalent bonds are broken at point?**



- A: A
- B: B
- C: C
- D: D

7. **The truth table given below is for what kind of gate?**

A	B	Output
0	0	0
1	0	0
0	1	0
1	1	1

- A: NAND gate
- B: NOR gate
- C: OR gate
- D: AND gate